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A flexible metal ventricular catheter for treatment of complicated and protracted infections of the cerebrospinal fluid spaces: preliminary experiences.

Vieweg U, Kaden B, Van Roost D.

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In the management of shunt infection, the use of ventricular catheters made of silicone rubber for the temporary external drainage of cerebrospinal fluid (CSF) is general practice. However, the eradication of the primary source of infection may be hindered by the affinity of bacteria to silicone-based material. Compared to silicone catheters, a metal drainage device for temporary ventriculostomy appears to offer more favourable conditions for successful eradication of the infection. Since metal needles cannot be implanted permanently and since their screw-type fixation precludes attachment to the skulls of infants or small children, we developed a flexible metal catheter. This catheter was used exclusively for the treatment of particularly serious or chronic infections of the CSF spaces. The catheter is made of implantation steel and consists of a corrugated tube that renders it flexible. Cerebrospinal fluid drains into a receptable bulb at the tip of the tube. Tubing of other materials may be connected to the end of the metal catheter for either external or internal drainage. It was implanted as a temporary and later permanent CSF drainage in 7 male patients aged from 4 to 60 years, who suffered from chronic, recurrent ventriculitis (n = 5) with an average of 7 previous surgical revisions, as well as from complex infections (n = 2; basal tuberculous meningitis, brain abscess). The infections were successfully eliminated in 6 patients. In the remaining patient, the metal catheter for external ventriculostomy had to be removed after 4 days due a leakage of CSF; it was replaced by a silicone catheter and later on by a needle drainage. Other complications, such as secondary infection or intracerebral haemorrhage, did not occur. The average duration of external CSF drainage via the flexible metal catheter was 27 days (range 4-50 days). In 4 patients, the CSF drainage was converted to a permanent ventriculoperitoneal shunt using a new flexible metal catheter. At the time

of post-operative follow-up examination (average = 34 weeks), all shunts were functioning and there was no evidence of infection. In cases of especially complicated and protracted CSF infections, the flexible metal ventricular catheter is a promising device for treatment.

PMID: 9030350 [PubMed - indexed for MEDLINE]

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